

WHAT IS CLAIMED IS:

1. A planetary gear apparatus comprising an inner gear and a sun gear whose axes are aligned with a rotation axis, a carrier rotatably disposed about said rotation axis and having a plurality of receiving holes formed on a circumference about said rotation axis and extending in parallel with said rotation axis, and a plurality of planetary gears rotatably received in said receiving holes of said carrier and engaged with said inner gear and said sun gear, said inner gear, said sun gear and said planetary gears including helical teeth, an engaging phase of at least one of said planetary gears with respect to said inner gear and said sun gear being different from the engaging phases of the remaining planetary gears with respect to said inner gear and said sun gear.
2. A planetary gear apparatus according to claim 1, wherein the numbers of teeth of said inner gear and said sun gear which are located between mutually adjacent two planetary gears in the peripheral direction about said rotation axis are set to a value having a fraction below the decimal point, so that engaging phases of adjacent two planetary gears in the peripheral direction with respect to said inner gear and said sun gear are mutually different.
3. A planetary gear apparatus according to claim 2, wherein said planetary gears are arranged at equal intervals in the peripheral direction, and the installation number of said planetary gears is set to a value which is different from a divisor of the numbers of teeth of said inner gear and said sun gear so that the numbers of teeth of said inner gear and said sun gear located between the adjacent two planetary gears in the peripheral direction become a value having a fraction below the decimal point.

4. A planetary gear apparatus according to claim 1, wherein the installation number and the numbers of teeth of said planetary gears are set to a value which is an divisor of the numbers of teeth of said inner gear and said sun gear, and at least one of said planetary gears is arranged at a different interval in the peripheral direction from the remaining planetary gears so that an engaging phase of said at least one of said planetary gear with respect to said inner gear and said sun gear is different from the engaging phases of the remaining planetary gears with respect to said inner gear and said sun gear.